IN THE CLAIMS

1. (Currently Amended) A method for transmitting data <u>in an IP network</u> according to a <u>source and destination</u> flow table, a flow key, and one or more variables comprising:

receiving a data transmission in an IP network;

extracting at least one field from a header of the data transmission;

forming a combined, source/destination address entry based on the extracted at least one field;

determining a most granular bit-value mask corresponding to the <u>combined</u>, <u>source/destination address entry</u> at least one field from a mask table having a plurality of bit-value masks, wherein the plurality of bit-value masks include a plurality of granularities corresponding to each of the plurality of fields in the header;

applying the determined bit-value mask to the <u>combined</u>, <u>source/destination</u> address entry at least one field;

forming [[the]] a source and destination flow key based on the application of the determined bit-value mask to combined, source/destination address entry at least one field;

indexing the <u>source and destination</u> flow table with reference to the masked flow key;

looking up a flow entry in the indexed <u>source and destination</u> flow table; and transmitting data <u>in the IP network</u> according to the flow entry.

2. (Previously Presented) The method according to claim 1, further comprising: extracting a plurality of fields from a header of the data transmission;

determining a most granular bit-value mask corresponding to each of the plurality of fields from a plurality of mask tables, wherein each of the plurality of mask tables includes a plurality of bit-value masks;

applying the determined bit-value mask to each of the plurality of fields; and forming the flow key based on the application of the determined bit-value masks to the plurality of field.

- 3. (Previously Presented) The method according to claim 1, further comprising: if no bit-value mask in a mask table corresponds to the at least one extracted field, no mask is applied to the at least one field.
- 4. (Previously Presented) The method according to claim 3, further comprising: if no flow entry corresponds to the formed flow key, a default value is used for the flow entry.
- 5. (Previously Presented) The method according to claim 1, wherein determining a most granular bit-value mask includes performing a longest prefix match for the at least one field.
- 6. (New) The method according to claim 1, wherein the at least one field includes at least one selected from a group consisting of a source port, a destination port, a source IP address, and a destination IP address.

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7. (Previously Presented) The method according to claim 1, wherein the mask table includes at least one selected from a group consisting of an address mask table and a port mask table.

- 8. (Previously Presented) The method according to claim 1, further comprising: entering a bit-value mask in the mask table by a service provider.
- 9. (Previously Presented) The method according to claim 1, wherein the bit-value mask corresponds to a range of a plurality of subscribers to a service.
- 10. (Previously Presented) The method according to claim 9, wherein the plurality of subscribers includes at least one selected from a group consisting of network hosts and a subnetwork.
- 11. (Previously Presented) The method according to claim 1, wherein the bit-value mask corresponds to at least one network application.
- 12. (Previously Presented) The method according to claim 1, wherein the flow entry includes transmission information.
- 13. (Previously Presented) The method according to claim 12, wherein the transmission information includes at least one selected from a group consisting of application specific qualities an service specific qualities.

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14. (Previously Presented) The method according to claim 13, wherein the transmission information includes at least one selected from a group consisting of policy, quality of service, and latency.

15. (Currently Amended) A system for transmitting data according to a flow table, a flow key, and one or more variables, the system comprising:

a receiving unit configured to receive a data transmission in an IP network; an extraction unit configured to extract at least one field from a header of the data transmission;

an address entry unit configured to form a combined, source/destination address from the extracted at least one field;

a mask table including a plurality of bit-value masks, wherein the plurality of bit-value masks include a plurality of granularities corresponding to each of the plurality of fields in the header;

a masking unit configured to determine a most granular bit-value mask corresponding to the <u>combined</u>, <u>source/destination address</u> at least one field from the mask table, apply the determined bit-value mask to the <u>combined</u>, <u>source/destination</u> address at least one field, and output a masked flow key;

a flow table indexed with reference to the masked flow key; and
a transmitter configured to transmit the data transmission in an IP network
according to a flow entry in the flow table corresponding to the masked flow key of the data transmission.

- 16. (Previously Presented) The system according to claim 15, further comprising: a plurality of mask tables, each including a plurality of bit-value masks.
- 17. (Previously Presented) The system according to claim 15, wherein the masking unit is configured to determine a most granular bit-value mask by performing a longest prefix match for the at least one field.
- 18. (Previously Presented) The system according to claim 15, wherein the at least one field includes at least one selected from a group consisting of a source port, a destination port, a source IP address, and a destination IP address.
- 19. (Previously Presented) The method according to claim 15, wherein the mask table includes at least one selected from a group consisting of an address mask table and a port mask table.
- 20. (Previously Presented) The method according to claim 15, wherein the bit value mask is configured to allow at least one bit-value mask to be entered by a service provider.